Maine Department of Environmental Protection
Bureau of Land & Water Quality
O&M Newsletter
May 2006
A monthly newsletter for wastewater discharge licensees, treatment facility operators, and associated persons

INDEX

ALKALINITY AS A PROCESS CONTROL INDICATOR

Alkalinity can be used to indicate the rate of biological activity in wastewater treatment plants. Aerobic reactions correspond to an alkalinity decrease, while anoxic and anaerobic reactions correspond to an alkalinity increase. Measuring and controlling alkalinity at certain points within the treatment plant can provide biological control.

Alkalinity Defined

The alkalinity of water is a measure of its capacity to neutralize acids. It also refers to the buffering capacity, or capacity to resist a change in pH. Bicarbonates represent the major form of alkalinity in wastewater. Alkalinity is measured by titration and is reported in terms of equivalent calcium carbonate ($CaCO_3$). It is common practice to express alkalinity measured to a certain pH. Phenolphthalein alkalinity is measured by titration to a pH of 8.3. Total alkalinity is measured by titration to a pH of 4.5.

Biological Processes Reviewed

In wastewater treatment, the three forms of oxygen available to bacteria are dissolved oxygen (O_2), nitrate ions (NO_3^-), and sulfate ions (SO_4^{2-}). Aerobic metabolism uses dissolved oxygen, bacteria's most preferred oxygen source, to convert food to energy. A class of aerobic bacteria, nitrifiers, uses ammonia (NH_3) for food instead of carbon-based organic compounds. This type of aerobic metabolism that uses dissolved oxygen to convert ammonia to nitrate is referred to as nitrification. Nitrifiers are the dominant bacteria after most of the organic food supply has been consumed. When dissolved oxygen is depleted, the next most efficient source of oxygen is nitrate. Denitrification, or anoxic metabolism, occurs when bacteria use nitrate as the oxygen source. Under anoxic conditions, the nitrate ion is converted to nitrogen gas while the bacteria convert food to energy. Anaerobic metabolism occurs when dissolved oxygen and nitrate are no longer present and bacteria must obtain oxygen from sulfate. In this process the sulfate is converted to hydrogen sulfide and other sulfur compounds.

Alkalinity in Biological Reactions

Alkalinity can be used as an indicator of biological activity. Depending on conditions, each of the biological reactions will occur and change alkalinity at a certain and predictable rate. Measuring this rate of change will indicate the rate of biological reactions and allow for their control.

Each type of metabolism - aerobic, anoxic and anaerobic - has a direct relationship to the bicarbonate concentration. Thus, when bacteria consume or produce compounds such as nitrate or ammonia there is a corresponding change in bicarbonate concentration.

Aerobic metabolism in general, and nitrification in particular, will *decrease* alkalinity by the following reaction:

Nitrification (Aerobic)

$NH_4^+ + 2O_2 + 2HCO_3^- \rightarrow NO_3^- + 2CO_2 + 3H_2O$

Note that two bicarbonates are consumed for every ammonia that is converted to nitrate. For every part per million (ppm) of converted ammonia, alkalinity decreases by 7.14 ppm.

Anoxic metabolism, where nitrate is converted to nitrogen-gas, *increases* alkalinity by the following reaction:

Denitrification (Anoxic)

$5/23\ C_5H_7O_2N + NO_3^- \rightarrow HCO_3^- + 14/23\ N_2 + 2/23\ CO_2 + 6/23\ H_2O$

Here, one bicarbonate is produced for every nitrate converted to nitrogen-gas. Alkalinity increases by 3.57 ppm for every ppm of nitrate converted.

Anaerobic metabolism also *increases* alkalinity as shown by the following reaction:

Sulfate Reduction (Anaerobic)

$C_5H_7O_2N + 5/2\ SO_4^{2-} + 3\ H_2O$ ---> 5 $HCO_3^- + NH_3 + 5/2\ H_2S$

Alkalinity increases 17.86 ppm for every ppm of ammonia-N produced. Because this rate of change is so much greater for anaerobic conditions than for anoxic conditions alkalinity can be used to distinguish between the two. Thus, "septic" conditions can be avoided.

Alkalinity as a Process Control Indicator

Monitoring alkalinity within the treatment process can provide for the control of biological activity through adjustments to blower output, waste activated sludge rates and recycle rates.

The number and placement of sampling points are determined by a plant's size and processes design. A typical sampling layout might include the following sites:

Primary Clarifier Influent
Primary Clarifier Effluent
Aeration Basin Influent
Aeration Basin Effluent
Secondary Clarifier Effluent
Digester(s)

In primary clarifiers, solids are physically separated, thus biological activity and, by extension, alkalinity change is not expected. Increase in alkalinity indicates anoxic or anaerobic conditions in the sludge blanket. This could result in decreased removal efficiencies and increased organic and ammonia loading to the rest of the system. The remedy to this problem is to increase sludge removal rates to decrease solids detention time in the sludge blanket.

The same principle applies to secondary clarifiers as with primary clarifiers. Significant alkalinity increase indicates the onset of anoxic denitrification. The remedy to this problem is to increase recycle sludge rates to decrease the solids detention time in the sludge blanket.

Comparing alkalinity in the aeration basin influent and effluent allows for optimized organic and ammonia removal (via nitrification). Insufficient alkalinity loss indicates poor ammonia removal and possibly turbid effluent. Increasing the air supply incrementally will help increase the nitrification rate. Significant nitrification may result in excessive alkalinity loss. This could result in lowered buffering capacity for the system and final effluent pH violations. Nitrification may also result in rising or denitrifying sludge in the secondary clarifier. Decreasing the air supply and/or increasing the waste activated sludge rate (to decrease the solid retention time) will help remedy this problem.

Alkalinity decreases as bacteria aerobically metabolize organics. In an aerobic digester, sustained aeration may decrease alkalinity below the system's buffering capacity and cause the pH to drop low enough to limit biological activity. Consequently, poor settling and decreased volatile solids reduction may occur. The operator should establish high and low alkalinity "set-points" to maintain optimum digester efficiency. The aerobic digester should be aerated until alkalinity decreases to the low set-

point. The operator should turn the air off to establish an anoxic cycle and avoid low pH levels. The dissolved oxygen will be depleted and nitrate will be used as the oxygen source during which alkalinity will correspondingly increase. The aeration is resumed when alkalinity reaches the high set-point to avoid septicity.

(Adapted from the February '94 Operations Forum by Fred Dillon - Falmouth WPCF and Don Albert - MeDEP)

SRF NEWS

The Legislature recessed until May 22 without deciding on an environmental bond. The Appropriations Committee is planning to convene before the 22nd to vote on LD 1001, the bond question that includes state match money for the State Revolving Fund (SRF) federal funds ($1 in state funds bring in $5 in federal funds) and construction grants for communities that can not afford to borrow money for needed wastewater projects. A vote from the Appropriations Committee would then move the bill to the floors of the House and Senate for votes. A 2/3 vote from both the House and Senate is required to bring the bond question to the voters in November.

Steve McLaughlin

EPA Guidelines for *E. coli* enumeration

EPA has issued Guidelines Establishing Test Procedures for the Analysis of Pollutants; Analytical Methods for Biological Pollutants in Wastewater and Sewage Sludge as a Proposed Rule. EPA published the guidelines on August 16, 2005 with comments due by October 17, 2005. After receiving comments, EPA issued a "Notice of Data Availability" regarding a methodology not listed for approval in the original "Guidelines".

Previously, EPA had approved bacteria test methods for ambient water and drinking water, but not for wastewater. Some states had officially sanctioned one or more methods, but there was no "approved" method sanctioned by EPA. The methods proposed for "enumeration of *E. coli*." in the original "Guideline" document include: Membrane Filter (MF) using the Modified mTEC agar method as described in EPA Method 1603; and, the Multiple Tube Fermentation (MTF) - ONPG-MUG as described in *Standard Methods* 9223B (a.k.a. the IDEXX Colilert or Colilert-18 methods). In the "Notice of Data Availability" document, EPA also requested comments on the m-ColiBlue24® method, a membrane filtration method developed by the Hach company. The proposed rule also proposed approving methods for enumerating other bacteria in wastewater and wastewater sludge.

Probably the biggest impact of the proposed rule is that the most commonly used method for enumerating *E. coli* in wastewater effluent, the Membrane Filtration method using mTEC agar and

urea confirmation test, is not proposed for approval. The "Guideline" states, "EPA is not proposing the use of EPA Method 1103.1 (mTEC) for *E. coli* or EPA Method 1106.1 (mE-EIA) for enterococci for use in wastewater because the validation test results for these methods showed that the false positive and false negative rates for these methods were unacceptably high." A quick survey of POTWs in Maine required to test for *E. coli* revealed that most POTWs use the mTEC membrane filtration method. A quick review of the mTEC and Modified mTEC methods show that the filtration of the sample is done following the same methodology in each case, and the samples are incubated in much the same manner. The Modified mTEC method does not require the incubated filter to be placed in urea for a confirming test and anecdotal evidence is that the Modified mTEC method gives colonies that are easier to count. The overall cost of the media is somewhat higher for the modified mTEC agar, although this is somewhat offset by not needing a second reagent and by the time savings from not doing the final confirming step.

We will continue to monitor the EPA rulemaking process and inform everyone as soon as EPA issues their final rule, which is expected to be in June or July.

Dick Darling

Approved Training

May 9, 2006 in Topsham, ME – Excavation & Trenching Safety - sponsored by WPETC (207) 729-6569 – Approved for 3.5 hours
*****
May 23, 2006 in Bangor, ME – Care & Maintenance of Laboratory Equipment and Preparing for a Lab Audit - sponsored by WPETC 1-888-621-8156 – Approved for 5 hours
*****
May 25, 2006 in Waterville, ME – Identification of Filamentous Organisms in Activated Sludge - sponsored by NEIWPCC/JETCC (207) 253-8020 – Approved for 6 hours
*****
May 26, 2006 in Waterville, ME – Operation, Troubleshooting and Upgrade of Municipal and Industrial Lagoons - sponsored by NEIWPCC/JETCC (207) 253-8020 – Approved for 6 hours
*****
June 8, 2006 in Presque Isle, ME – Introduction to Pretreatment - sponsored by MRWA (207) 729-6569 – Approved for 3.5 hours
June 20, 2006 in Bangor, ME – Pump Stations O & M - sponsored by WPETC 1-888-621-8156 – Approved for 5 hours
*****
June 21, 2006 in Brunswick, ME – Lagoon Day - sponsored by MRWA (207) 729-6569 – Approved for 4.25 hours
*****
June 22, 2006 in Corinna, ME – Lagoon Day - sponsored by MRWA (207) 729-6569 – Approved for 5 hours
*****
July 18, 2006 in Saco, ME – Uniform traffic Control & Flagging - sponsored by WPETC 1-888-621-8156 – Approved for 3.5 hours

*****
July 20, 2006 in Bangor, ME – Uniform traffic Control & Flagging - sponsored by WPETC 1-888-621-8156 – Approved for 3.5 hours
*****
July 27, 2006 in Presque Isle, ME – Uniform traffic Control & Flagging - sponsored by WPETC 1-888-621-8156 – Approved for 3.5 hours
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Note: JETCC stands for Joint Environmental Training Coordinating Committee
MRWA stands for Maine Rural Water Association
MWWCA stands for Maine Wastewater Control Association
NEIWPCC stands for New England Interstate Water Pollution Control Commission
WPETC stands for Wright Pierce Environmental Training Center.

10th Biannual North Country Convention to be held in November

The biannual two-day training conference for operators in Northern Maine will be held this year on November 1st and 2nd in Presque Isle. As usual, 12 or more hours of approved training on a variety of topics will be presented over the two days. The North Country Convention has always been well attended by operators from the northern part of the state. It offers not only an opportunity to attend training sessions but also to meet with product vendors and exchange ideas with each other. For more information about the North Country Convention, contact JETCC at 253-8020

For Practice

1. Which type of pump should not be used for pumping solids with a concentration of more than 5%?
a. Plunger pump
b. Centrifugal pump
c. Diaphragm pump
d. Progressive Cavity Pump

2. To decrease the MCRT and MLSS concentration in an extended aeration treatment plant, the operator should:
a. increase the wasting rate.
b. decrease the wasting rate.
c. decrease the RAS rate and leave the wasting rate alone.
d. decrease the wasting rate and increase the RAS rate.

3. The most important class of organisms in a biological wastewater treatment facility are
a. Fungi
b. Bacteria
c. Protozoa
d. Metazoa

4. A sludge press had a plate surface area of 150 square feet. The sludge concentration is 2.0% solids. A total of 1000 gallons of sludge is processed in a 2 hour filter run. It takes 30 minutes to discharge the filter cake and get the filter ready for another run. What is the solids loading on the filter?
a. 0.38 lb/sq.ft./hr
b. 0.41 lb/sq.ft./hr
c. 0.56 lb/sq.ft./hr
d. 0.84 lb/sq.ft./hr

Where's My DMR-QA Study 26 Announcement Package?

Let me begin by stating, if you have never participated in this laboratory QA program in the past, you probably work at a small facility. Only major and selected minor permittees must participate in EPA's Discharge Monitoring Report – Quality Assurance Study 26. Don't worry if you have never heard of this program! You are probably not on the list of participants and won't have to be concerned about this matter.

The annual DMR-QA Announcement Package was sent to the printers by EPA on May 4th. If it is actually mailed about a week later, you may expect to receive it before May 19th. (FYI- Last year, I received my own booklet on May 16th.) You are encouraged to verify the receipt of the DMR-QA Study 26 booklet via e-mail, if possible. The address is dmrqa@epa.gov for those with Internet access. I hope that this is almost all wastewater treatment facilities by now. Please follow the sample response e-mail format in the instructions. Otherwise, you should use a copy of the Address Verification Form included in this year's package. John Helm's address is on the form. EPA expects you to verify receipt of the booklet before May 26, 2006.

Read the NPDES Permittee Instructions on pages 4-6 of your booklet. The instructions for your commercial laboratories are on pages 7-9. The WET Testing Laboratory Instructions are on pages 10-13. You should order your unknowns for in-house testing by June 2, 2006. Many of you may have DMR-QA subscriptions from year to year with your Provider Laboratory.

Before you finalize your order for test samples from your Provider this year, you should carefully read pages 8 and 9 in your DMR-QA Study 26 booklet. The "Chemistry/Microbiology Analyte Checklist" contains quite a few more analytes this year. Note the new Fecal and Total Coli form tests now listed. You are not required to do any analyte which is not on both your current MEPDES permit and the current Analyte Checklist. There is no E. coli test available at this time. Inland facilities will generally not be required to run any bacterial unknowns in 2006. However, most marine dischargers will have to do the Fecal Coli form microbiological unknown starting this year.
Another new analyte, listed under Miscellaneous Analytes, is Settleable Solids. You may also have other analytes listed under Nutrients for 2006, especially if discharging to a small receiving water. Read your MEPDES permit to be sure.

Read the new DMR-QA Study 26 Schedule on page 2 and post a copy of it in your lab for future reference. It would be a good idea to enter the various deadlines into your laboratory calendar now so that you won't miss any of them later this year.

Use copies of the four-page NPDES PERMITTEE DATA REPORT FORM (EPA-420) in your DMR-QA Study 26 booklet for reporting purposes later. In this way, you will have the entire booklet for your DMR-QA Study 26 file. You may want to refer to this booklet next May when you start thinking about DMR-QA Study 27 matters.

Photocopy everything that you send to anybody concerning DMR-QA, including your Provider Laboratory's Data Forms and your completed Data Packages, of course. Many Providers allow you to report your test results to them online. As usual, I do not want any copies of your completed data packages. It is your responsibility to retain in your files copies of any data packages sent to all of your Provider Labs. If your compliance inspector or I need to see a copy of your data package to resolve a reporting issue later, we will ask you for it at that time.

Please call or e-mail me or your compliance inspector with any questions concerning your participation in this year's program.

Ken Jones
DMR-QA State Coordinator
Bureau of Land & Water Quality
Division of Water Quality Management
207-287-4869
Ken.jones@maine.gov

Spring 2006 Exam

The Spring wastewater operator certification exam was given on May 10, 2006 in the usual locations. The results should be available by mid to end of June. Please don't call either JETCC or this office before June 15the to get your results, because we probably won't have them. We'll get them out as soon as possible.

Dick Darling

NEIWPCC/JETCC Sponsor training by Dr. Michael Richard

Dr. Michael Richard, internationally recognized expert in identification of wastewater treatment microorganisms and operation of wastewater treatment, will present two training classes at the Kennebec Sanitary Treatment District in May. Dr Richard will conduct a hands-on class on the identification of filamentous organisms on May 25th and a class on operations, troubleshooting and upgrade of municipal and industrial lagoon system on May 26th. These training classes are being sponsored by the New England Interstate Water Pollution Control Commission and JETCC. For more information, contact JETCC at 253-8020.

Answers to For Practice:

1. b – Centrifugal pumps may cavitate when trying to pump liquids with a high solids concentration. Positive displacement pumps should be used to pump sludge with high solids content.
2. a - Increasing the wasting rate will remove sludge from the system. This will decrease the MLSS and the MCRT. Changing the RAS rates will have no long-term effect on either the MCRT or MLSS.
3. b - Almost all of removal of organic matter in a biological treatment plant is done by bacteria. Protozoa and metazoa are good indicators of the age and health of the mixed liquor, but they provide little treatment. Fungi are present only under very adverse conditions that should be avoided.

4. b - The sludge applied to the filter in each run is:

$$0.020 \times 1000 \text{ gal} \times 8.34 \text{ lb/gal} = 166.8 \text{ lb}$$

The loading on the filter is

$$\frac{166.8 \text{ lb/run}}{150 \text{ sq.ft}} = 1.11 \text{ lb/sq.ft./run}$$

Each run is 2 hours long so the loading on the filter is:

$$\frac{1.11 \text{ lb/sq.ft./run}}{2 \text{ hr/run}} = 0.56 \text{ lb/sq.ft./hr}$$

DEP Compiling Information on Hazardous Air Pollutant Emissions at POTW's

Springtime is here, and DEP's Air Toxics and Emission Inventory Section is preparing for their air emissions inventory reporting cycle. The Department of Environmental Protection's Chapter 137 requires facilities to report their emissions of hazardous air pollutants (HAPs) every three years. Chapter 137 lists 217 HAPs that you may need to report and the reporting thresholds for each. If a facility exceeds the reporting threshold for one or more pollutants, they must report the emissions estimates of these pollutants to the DEP. Exceeding the reporting thresholds in Chapter 137 does NOT mean a facility is in violation of an emission standard, Chapter 137 is an emission inventory reporting regulation. However, not filing a report with the DEP when you exceed a reporting threshold, would be considered a violation.

In reviewing emissions from Publicly Owned Treatment Works (POTWs), the Air Toxics and Emissions Inventory Section found that several plants are required to report air emissions because they release acrolein in excess of the reporting threshold. The EPA-developed emission factor for acrolein is 0.00447 lbs per million gallons of flow; the reporting threshold for acrolein in Chapter 137 is 10 lbs/year. Therefore, facilities with flows greater than an average daily flow of 6.13 MGD are subject to reporting, unless they have site specific data indicating that they are still below the 10 lb/yr threshold.

Data collected from POTWs and about 400 other facilities is compiled into a state emission inventory. Maine's inventory is submitted to the EPA and is included in the national emissions inventory. These inventories are used by the state and federal agencies and regional organizations to make air policy decisions, to track progress toward meeting air quality standards, and to provide inputs for human health risk assessments studies. In Maine, the data is used for ozone season planning in southern Maine, to model local air quality conditions, and by the Maine Air Toxics Initiative. The Maine Air Toxics Initiative is a stakeholder group formed to prioritize what pollutants and what source categories cause the most risk based on the volume of the pollutants and their toxicity.

The emissions reports are due on July 1, 2006. To assist in this process, the Air Toxics and Emissions Inventory Section will access the flow information facilities submit on their discharge monitoring reports (DMRs) and apply EPA-developed emission factors to calculate the emissions. A report will then be generated and sent to the facilities to certify.

The DEP presented information on this topic during the DEP Updates portion of the MWWCA spring conference on April 7th. In addition, the DEP has created a fact sheet on this topic which can be found at http://www.maine.gov/dep/air/emissions/haps.htm.

For more information or to get a copy of our fact sheet on this topic, contact the DEP's Lisa Higgins at (207)-287-7023 or Lisa.Higgins@Maine.gov.

Department of Environmental Protection

POTW Emission Reporting
FACT SHEET

The U.S. Environmental Protection Agency (EPA) requires each state to compile air quality and emissions data. The Department of Environmental Protection's (DEP's) Emissions Inventory Program is responsible for compiling emissions data from about 400 facilities in Maine. The DEP's Chapter 137 requires facilities to report emissions of certain hazardous air pollutants (HAP) to the Emission Inventory Program when those emissions exceed thresholds established in the rule. EPA has recently developed emission factors for POTWs that indicate certain facilities are now subject to reporting.

Does this apply to my facility?
If your facility has a process flow greater than 6.13 million gallons per day, then you are required to report based on EPA's emission factors, as facilities over this flow rate exceed the reporting threshold of 10 pounds/year for acrolein.

How are air emissions calculated?
In the process of developing the 2002 National Emission Inventory and the National Emission Standards for Hazardous Air Pollutants: Publicly Owned Treatment Works, EPA developed emission factors for volatile organic compounds (VOCs), ammonia and 53 other hazardous air pollutants. EPA reviewed and compiled test data from several large POTWs and developed emission factors that are based on flow. For example, the emission factor for acrolein is 0.00447 lb/MG.

Will I need to calculate these air emissions?
No. The Emissions Inventory Program is working with the Division of Water Quality Management (DWQM) to get the flow data submitted with your DMRs. The Emissions Inventory Program will use this data to calculate all hazardous air pollutant emissions from your facility. We will then send you a report asking you to review and certify the flow data and the calculated emission values.

What compounds do I need to report on?
Once you exceed a threshold for one of the pollutants listed in Chapter 137, you must report on the pollutants that have exceeded the reporting thresholds. For this reporting cycle, the DEP is supplying you with the emission factors for 53 hazardous air pollutants. You do not have to report on pollutants for which you don't have emission data or emission factors. The DEP will also be writing guidelines to "exempt" the reporting of incidentals such as maintenance or cleaning products used by the facility.

How often do I need to report?
Hazardous air pollutant emission inventories are collected every three years. The Emissions Inventory Program is currently collecting data for Calendar Year 2005.

When is this report due?
The emission inventory report is due ***July 1, 2006.*** Reports with flow data and calculated emissions will be mailed to facilities by May 15, 2006.

What will happen to our data?
It becomes part of the Maine's 2005 air emission inventory which is submitted and compiled into the 2005 National Emission Inventory. The data is used by state and federal agencies to make air quality policy decisions, to track progress toward meeting air quality standards, and to provide inputs for human health risk assessment studies. In Maine, the data is used for ozone season planning in southern Maine, to model local air quality conditions, and by the Maine Air Toxics Initiative, a group formed to prioritize what pollutants and what source categories cause the most risk based on the volume of the pollutants and their toxicity.

Will reporting this data result in new regulations or requirements imposed on POTW's?
Unlikely. EPA already has a regulation in place for POTWs. The regulation is called the National Emission Standards for Hazardous Air Pollutants: Publicly Owned Treatment Works (a.k.a., the POTW MACT). This regulation focuses on POTWs that are major HAP sources (i.e., emit greater than 10 tons per year (tpy) of a single HAP or 25 tpy of a combination of HAPs) or POTWs that are downstream of another significant air pollution source, such as a pulp and paper mill. Maine does not anticipate regulating air emissions from POTWs because they are not a significant contributor to air toxics based on the MATI priorities listing.

Will this result in fees?
Unlikely, unless you have an air emission license. Currently, an Air Toxics Surcharge is assessed to sources that have an air emissions license and report to the Toxics Release Inventory (TRI). No other fees apply to facilities that solely report emissions of hazardous air pollutants. The Air Bureau may change the fee system so that the air toxics surcharge is based on the HAPs emissions reporting under Chapter 137 instead of TRI.

Are you going to require this reporting from industrial waste water treatment plants (non-POTWs)?

We already do. Most non-POTWs are part of facilities which already report their hazardous air pollutant emissions to the Emissions Inventory Program. These facilities have been and will continue to be required to report HAPs from their waste treatment plants.

What if we have test data or have modeled our facility's air emissions?
It is noted that these are general POTW emission factors and do not account for variability between different POTWs, therefore if you have test data or have run a model that produces emission estimates that are more accurate than the emission factors developed by EPA, then submit them with your certification form. One of the models that EPA recommends is called WATER9. Information about WATER9 is available on EPA's website at http://www.epa.gov/ttn/chief/software/water/.

What if I have a plant that is not "typical", it's enclosed or uses a different process than most POTWs?
If you have emission test data or design data from your plant then that can be used to develop your emission estimates. Otherwise, you need to go with the best emission factors available. Another approach would be to use a waste water emission specific model to demonstrate the emission quantities. If engineering or operator knowledge suggests that your plant does not emit a specific pollutant, then you can discuss this with the DEP. Back-up documentation must be provided to the DEP.

What if I believe my emission factors or methodology is better?
Chapter 137 spells out a hierarchy of the emission estimation methods as follows: 1) Continuous or Predictive Emission monitoring, 2) stack testing 3) facility specific emission factor (from previous testing, manufacturer's or design specs, mass balance, facility specific modeling), 4) EPA published emission factors, 5) industry or trade group emission factors and 6) best engineering judgment.

Do my calculations or emissions estimates need to be certified by a professional engineer?
No. Calculations and estimates can be developed by anyone familiar with the facility's emissions. The report submitted to the DEP must contain a certification that the information is accurate and complete to the best knowledge of the facility's responsible official or his/her designee.

Will odor control equipment effect my emissions?
It may. If the odor control equipment chemically alters or destroys the pollutant then it will effect your emissions. Please note that hydrogen sulfide has a low threshold of 200 pounds. Since we don't have an emission factor for this compound, facilities should review any test data they have on this compound.

Other important information….

Air Toxics and Emissions Inventory Program, contact – Lisa Higgins tel. 287-7023
email Lisa.Higgins@Maine.gov

Maine Emission Inventory Regulation
http://www.maine.gov/sos/cec/rules/06/096/096c137.doc

EPA's emission factor listing page A-122
ftp://ftp.epa.gov/EmisInventory/draftnei2002/nonpoint/documentation/2002_neidraftnpdocumentation_mar1605.pdf

Link to EPA Water9 model
http://www.epa.gov/ttn/chief/software/water/index.html

POTW MACT link
http://www.epa.gov/ttn/atw/potw/potwpg.html